

Theses of the PhD dissertation

**COMPARATIVE ANALYSIS OF THE FINANCIAL PERFORMANCE
OF COMPANIES IN THE TOURISM SECTOR IN ROMANIA AND
HUNGARY**

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1. RESEARCH BACKGROUND, OBJECTIVES, AND HYPOTHESES OF THE RESEARCH

Tourism is one of the key sectors of the global economy, making a significant contribution to economic growth, employment, and welfare creation, while also representing an important component of service exports (Costa & Costa, 2024; Dedkova & Gudkov, 2020; Dryglas & Smith, 2025). The sector reached a historic peak in 2019 in terms of both international tourist arrivals and tourism revenues. The year 2019 can be regarded as a global benchmark year, during which international tourist arrivals exceeded 1.4 billion, while tourism's total contribution to global GDP accounted for approximately 10.3%. At the same time, 9.9% of global employment was linked to the sector (WTTC, 2019). In the European Union, the macroeconomic significance of tourism was almost identical, accounting for 9.5% of GDP and 11.2% of total employment (UNWTO, 2019). From a national economic perspective, Hungary remained 1.2 percentage points below the European Union average in tourism's economic contribution, while Romania lagged behind by 3.5 percentage points.

At the same time, tourism is highly exposed to changes in the economic environment and global trends. Economic growth positively influences tourism demand, while the expansion of the sector enhances the competitiveness of accommodation establishments (Costa & Costa, 2024; Weerathunga et al., 2020a). Consequently, economic crises have a substantial impact on the sector. The COVID-19 pandemic resulted in an unprecedented decline in international mobility and tourism demand (Donthu & Gustafsson, 2020a; Kumar, 2021).

The crisis generated a major demand shock that considerably affected the liquidity, profitability, and financing structure of tourism enterprises. In 2020, international tourist arrivals declined globally by more than 70%, representing one of the most severe structural disruptions in the history of modern tourism (Statista, 2025). This period highlighted the industry's vulnerability and accelerated the development of more resilient, adaptable business operations (Vašaničová et al., 2025a). The asymmetric effects of the global crisis particularly affected countries whose tourism structures were more strongly dependent on international demand, whereas economies with a higher share of domestic tourism demonstrated relatively more favourable conditions. Examining these structural differences is especially relevant in Hungary and Romania.

The subsequent period represented a phase of global recovery. By 2024, international tourist arrivals had once again reached, and in some regions even exceeded, pre-pandemic levels, while the total economic contribution of tourism increased to nearly USD 11 trillion (Statista, 2025). Nevertheless, the pace of recovery differed significantly across regions and countries, further justifying the differentiated examination of Central and Eastern European economies.

Following the political and economic transition period, Hungary and Romania underwent similar transformations. Despite these similarities, the structure of their tourism sectors and the characteristics of

tourism demand reveal considerable differences. In Hungary, international tourism plays a more dominant role, whereas in Romania, domestic tourism remains the primary driving force of the sector (Oprea et al., 2023). These structural differences may result in distinct adaptation and crisis-management mechanisms in the operation of tourism enterprises.

Despite the growing academic relevance of the topic, there are still few regional comparative studies examining enterprises operating in the accommodation and food service sector in Hungary and Romania within a unified analytical framework. In particular, there is a lack of research simultaneously analysing financial performance, performance measurement practices, and the corporate clusters that can be identified on this basis. The present research aims to contribute to filling this research gap.

1.1. Main objectives of the research

The central objective of this research is to conduct a comparative analysis of enterprises operating in the accommodation and food service sector in Romania and Hungary, with particular emphasis on identifying corporate clusters based on financial performance and performance measurement maturity.

Based on the research objectives, the study is divided into primary and secondary research components. The secondary research relies on data obtained from the relevant academic literature, regional-level accounting databases containing financial statements of Hungarian and Romanian companies (sources: OPTEN database and a Romanian data provider company), statistical data published by national statistical offices (sources: HCSO and INS), as well as large corporate datasets and financial statements derived from the EMIS database. The primary research component is based on the results of a questionnaire survey. The present study was preceded by earlier primary and secondary investigations: at the primary level, a pilot survey for the current questionnaire-based research was conducted, while at the secondary level, a comparative financial analysis of large enterprises in the two countries was carried out, thereby laying the foundations for the present analysis.

In order to achieve the central objective of the research, the following specific objectives are formulated:

1. **Literature review of the concept and measurement approaches of business performance:** To explore the conceptual frameworks of business performance, as well as to review the most important performance measurement methods and models, with particular emphasis on their applicability in the tourism and hospitality sector.
2. **Identification of performance measurement methods and tools characteristic of the tourism and hospitality sector:** To identify and systematise the financial and non-financial performance indicators and evaluation tools most commonly applied within the sector.
3. **Presentation and comparative analysis of the sector at national and regional levels:** To examine the situation of the tourism and hospitality sector in a comparative context between Romania and

Hungary, as well as at the regional level, focusing on the North Great Plain, Northern Hungary, and Szeklerland regions.

4. **Examination of managerial and decision-making attitudes towards performance measurement:** To investigate the performance measurement practices, information needs, and attitudes related to performance measurement among managers and decision-makers operating in tourism and hospitality enterprises in Romania and Hungary.
5. **Identification and comparison of maturity profiles based on performance measurement practices:** To classify accommodation and food service enterprises according to their performance measurement practices in order to identify distinct performance measurement maturity profiles.
6. **Comparative cluster analysis based on financial performance:** To conduct a regional-level comparative cluster analysis of the financial performance of companies operating under NACE 55 and 56 activities in Romania and Hungary, with the aim of identifying and comparing different performance levels.

1.2. Formulated Hypotheses

H1: The definition of business performance, as well as the prioritisation of indicators applied in performance measurement, is significantly influenced by the national context and organisational characteristics of enterprises, while differences can also be identified between the theoretical importance and the practical application of these indicators.

H1a: The definition of business performance differs significantly between Hungarian and Romanian enterprises.

H1b: The prioritisation of indicators applied in the theoretical approach to business performance measurement shows similar patterns across the examined countries.

H1c: A statistically significant difference can be identified between the theoretical importance and the practical application of business performance measurement indicators, the extent and pattern of which differ across countries.

H1d: The practical application of business performance measurement indicators differs significantly between the examined countries.

H1e: Company size, field of activity, and company age play a significant role in shaping the practical prioritisation of business performance measurement indicators, whereas ownership structure and the organisation of accounting activities do not show a significant effect.

H2: As a result of economic crises, the business performance and performance measurement practices of enterprises operating in the accommodation and food service sector have undergone substantial

transformation, while the role of financial results became primarily limited to maintaining operational viability, followed by gradual stabilisation in the post-crisis period in both countries.

H2a: The perception of the impact of the COVID-19 pandemic, the energy crisis, and the armed conflict on business performance differs significantly between Hungarian and Romanian tourism enterprises.

H2b: The crises influenced performance measurement practices and the perceived importance of performance measurement to different extents in Hungary and Romania.

H2c: During periods of crisis, the financial results generated by enterprises were primarily sufficient only to maintain operational continuity, whereas a moderate stabilisation can be observed in the post-crisis period in both countries.

H3: Based on business performance measurement practices, enterprises operating in the accommodation and food service sector can be classified into multidimensional and clearly distinguishable performance measurement maturity profiles.

H3a: Business performance measurement practices can be structured into several distinct components.

H3b: Distinct performance measurement maturity clusters can be identified among enterprises operating in the accommodation and food service sector in Hungary and Romania based on their business performance measurement practices.

H3c: Clusters classified at the same level of performance measurement maturity can be matched across Hungary and Romania based on the principal component dimensions.

Secondary Research Hypotheses

H4: Enterprises operating in the accommodation and food service sector in the examined regions can be classified into clearly distinguishable cluster groups based on their financial performance.

H4a: Within regions, corporate cluster groups with significantly different financial performance profiles can be identified.

H4b: The differences between the clusters persist over time and can also be identified through temporal dynamics.

Hypothesis testing methods: Two-step cluster analysis, Kruskal–Wallis test, Dunn’s test, and financial analysis.

H5: The correspondence between clusters identified in the examined regions is only partial, since clusters representing the same relative performance level may be characterised by different financial structures.

H5a: Clusters representing the same relative performance level can only be partially matched across regions.

H5b: The cluster closest to the benchmark is not necessarily identical to the cluster classified as the best-performing at the regional level.

1.3. Literature-based foundation of the hypotheses

The literature-based foundation of Hypothesis H1 is supported by several research findings. The concept of business performance is not used consistently in the literature, and no internationally accepted definition has emerged (Bourguignon, 1997; Fallahi et al., 2023). Consequently, it is justified to examine how company managers and decision-makers interpret business performance in different national and organisational contexts. The context-dependent nature of performance measurement practices is reinforced by the fact that company size influences the range of indicators and methods used, with larger companies more likely to apply both financial and non-financial indicators (Selto & Malina, 2004; Speckbacher et al., 2003). In the case of SMEs, formal performance measurement systems are less widespread, and the decision-support use of accounting information remains limited; however, non-financial indicators may still play a significant role in achieving higher performance levels (Dajnoki & Filep, 2020; Garengo et al., 2005; Scarborough & Cornwall, 2015). Based on these findings, it can reasonably be assumed that the interpretation of business performance and the prioritisation of performance measurement indicators may differ across countries and according to organisational characteristics.

Hypothesis H2 is based on literature findings suggesting that economic and health-related crises have significantly transformed corporate operations, particularly in the accommodation and food service sector. During the COVID-19 period, a substantial decline in financial performance was observed, clearly indicating the sector's vulnerability (Haque, 2025). The crisis affected not only business profitability but also performance management practices: in several cases, traditional balanced frameworks became less dominant, while more flexible and adaptive solutions, such as OKR-based approaches, gained greater importance (Mann et al., 2020). According to the literature, crises encouraged companies to reconsider their performance measurement systems, since no single standardised solution can be effectively applied in a rapidly changing environment (Broccardo et al., 2024). In line with this, during periods of crisis, the focus of performance evaluation shifted from growth towards survival, operational continuity, and adaptability (Shekarian et al., 2023). These findings support the assumption that economic crises significantly influenced both the business performance and the performance measurement practices of enterprises operating in the accommodation and food service sector.

The formulation of Hypothesis H3 is justified by literature findings indicating that organisational performance measurement and performance management practices can be categorised into distinct, multidimensional maturity profiles. Empirical studies conducted among Finnish organisations identified four separate performance management maturity profiles (Jääskeläinen & Roitto, 2015), while other studies described performance management along nine components and five maturity levels (Aho & Oy, 2012), and identified 16 key elements for assessing maturity (Aho, 2009). Based on these findings, it can

reasonably be assumed that enterprises operating in the accommodation and food service sector can be classified into multidimensional, clearly distinguishable maturity profiles based on the characteristics of their business performance measurement practices.

The literature-based foundation of Hypothesis H4 is supported by empirical studies indicating that enterprises in the accommodation and food service sector can be classified into distinct groups based on their financial performance. In a previous study, seven clusters based on profitability indicators were identified among Romanian hotel companies, which were further grouped into three broader performance categories (Lőrincz, 2025b). Similar findings were reported in the literature regarding Slovak spa enterprises, where several distinct clusters were identified based on profitability, efficiency, liquidity, and indebtedness indicators (Vašaničová et al., 2025). The clusters may also reflect regional differences, as different profitability and financial risk patterns emerge across regions (Lukáč, 2024). The methodological foundation of clustering is further strengthened by international studies that apply factor analysis and two-step cluster analysis, which identify homogeneous groups of tourism enterprises based on profitability, liquidity, efficiency, and capital structure indicators (Opreana et al., 2024). Additional findings suggest that the financial condition of tourism enterprises can be effectively captured through multidimensional indicator systems, which are suitable for differentiated evaluation and classification of companies (Čabinová et al., 2021; Droj et al., 2021). In other areas of tourism research, it has also been confirmed that tourism-related entities can be classified into clearly distinguishable groups based on multidimensional indicator systems (But et al., 2024; Pan et al., 2024). Clustering results directly related to financial structures have also been confirmed in the case of hotel chains (Devesa et al., 2009). Based on these findings, it can reasonably be assumed that enterprises in the accommodation and food service sector can be classified into distinct clusters based on their financial performance.

Hypothesis H5 is based on research findings suggesting that the financial performance and financial structures of enterprises operating in the accommodation and food service sector may follow regionally differentiated patterns. A comparative analysis of hotels in three Spanish coastal regions revealed significant differences in company size, financial structure, and economic performance, highlighting that identical relative performance levels may still be associated with different financial structures (Alarcon, 2015). The persistence of regional differences has also been confirmed by international comparative studies, which identified distinct regional patterns among hotels, resorts, and shipping companies in Asia and Europe based on financial indicators in both the pre- and post-COVID periods (Opreana et al., 2024). Consequently, it can be assumed that the correspondence between clusters identified in different regions is only partial, as clusters representing identical relative performance levels may be characterised by different financial structures.

2. DATABASE AND DESCRIPTION OF THE APPLIED METHODS

Both primary and secondary data collection methods were employed in this research. As a first step, the relevant literature was reviewed, with particular emphasis on the general characteristics of performance measurement methods and their specific applications in the tourism and hospitality sector. Subsequently, based on secondary sources, the current state of the tourism and hospitality sector was presented at the national level in Romania and Hungary, as well as at the level of the three regions included in the study.

In Hungary, the research covers the NUTS 2 regions of the North Great Plain (Hajdú-Bihar, Jász-Nagykun-Szolnok, and Szabolcs-Szatmár-Bereg counties) and Northern Hungary (Borsod-Abaúj-Zemplén, Heves, and Nógrád counties), while in Romania it focuses on Szeklerland within the Central (Centru) Region, comprising Harghita, Covasna, and Mureş counties. Data collection was based on the databases of the HCSO, INS, Eurostat, Euromonitor, EMIS, and OPTEN, financial statements provided by a Romanian data provider, and the database generated from the questionnaire survey. The secondary data covered the period from 2020 to 2024.

The primary research was conducted through a questionnaire survey of managers of enterprises operating in the accommodation and food service sector in Hungary and Romania. The objective was to explore managerial attitudes, information needs, performance indicators, and organisational solutions related to performance measurement practices. Based on the responses obtained, distinct corporate maturity profiles could be identified.

The secondary research was based on the relevant literature and the quantitative analysis of multiple data sources, providing the foundation for the comparative examination of the financial performance of Romanian and Hungarian enterprises through cluster analysis. Microsoft Excel, MATLAB, and IBM SPSS Statistics 31 were used for data processing, statistical analyses, and the preparation of figures.

2.1. Materials and methodology of the primary research

The development and refinement of the measurement instrument used in the present research were preceded by a pilot study, in which responses from enterprises operating in Szeklerland, more specifically in Harghita County, whose principal activities were classified under NACE 55 and NACE 56, were analysed (N = 71). Several publications resulting from the pilot study drew conclusions about business performance measurement practices, the attitudes associated with performance measurement, and employee performance measurement, evaluation, and management practices.

Among the enterprises examined, strategic objectives and performance measurement priorities were not always aligned, indicating both a need and an opportunity for further development. Financial statements were typically analysed more frequently than semi-annually, and the results were primarily used to support present- and future-oriented managerial decision-making. Financial indicators continued to dominate performance measurement practices, complemented by assessments of customer and employee satisfaction.

Economic crises, particularly the COVID-19 pandemic and, to a lesser extent, the energy crisis, significantly influenced both business performance and performance measurement practices, primarily by increasing the emphasis on cost-related considerations (Lőrincz, 2024b).

The surveyed enterprises recognised the importance of employee performance and its contribution to business outcomes. Within the employee performance management process, guidance, feedback, and monitoring played a prominent role, whereas the use of standardised measurement tools was not yet widespread. Formal evaluations were less frequent, while informal observation was more common, and significant differences were observed across company size categories. Overall, enterprises reported moderate satisfaction with their current practices, indicating openness to further development and improvement (Lőrincz, 2024a).

Based on the findings of the pilot study, the questionnaire was refined and subsequently pre-tested through interviews conducted with the General Manager of Hotel Fenyő in Romania and the General Manager of Aquaticum Hotel & Spa Debrecen in Hungary. These preliminary consultations contributed to establishing the measurement instrument's content validity. The questionnaire captures multiple dimensions of performance management, ranging from conceptual interpretations and the theoretical and practical prioritisation of performance measurement criteria, through strategic objectives and knowledge of performance measurement systems, to indicator utilisation, monitoring, feedback mechanisms, and the managerial use of performance-related information (see Appendix 5).

The questionnaire was available to respondents in both Hungarian and Romanian. Most of the questionnaire consisted of five-point Likert-scale items, which are among the most frequently applied instruments in the literature for subjective performance measurement (Dajnoki & Filep, 2020), owing to their applicability across a wide range of disciplines, including economics, sociology, and other social sciences. The literature continues to debate whether Likert-scale variables should be interpreted as ordinal or interval-level measures (Carifio & Perla, 2008; Darnton, 2023; Jakobsson, 2004; Jamieson, 2004; Liddell & Kruschke, 2018; Zou et al., 2023). In the present study, however, responses to these items were treated as ordinal variables, and non-parametric statistical tests were applied.

Data collection was conducted between 25 July and 11 September 2025 with the involvement of a market research company. In each country, 300 enterprises were surveyed. Quota sampling was employed according to the actual population proportions for NUTS 2 regions, company size (micro-, small-, and medium-sized enterprises), and field of activity. Enterprises were randomly selected from the full database until the predetermined sample size had been reached. In Hungary, micro-enterprises accounted for 63% of the sample, small enterprises for 32.7%, and medium-sized enterprises for 4.3%, while in Romania the corresponding proportions were 81.3%, 16.7%, and 2%, respectively.

Regarding the field of activity, 35.3% of Hungarian enterprises operated in accommodation services (NACE 55), while 64.7% operated in food and beverage service activities (NACE 56). In Romania, the

corresponding proportions were 43.7% and 56.3%, respectively. The process of data handling, processing, and analysis is illustrated in Figure 1. Following the data preparation stage, descriptive statistical analysis was conducted.

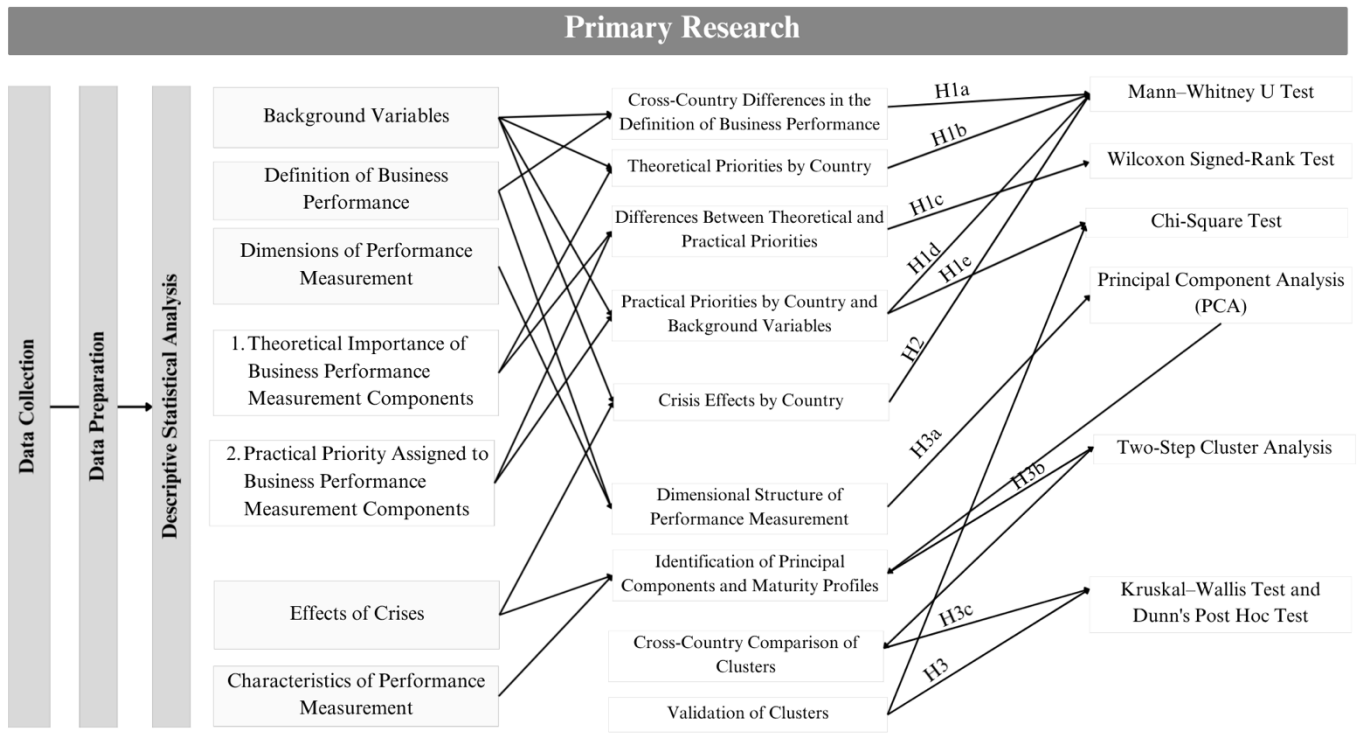


Figure 1. Methodology of Questionnaire Processing

Source: Author’s own compilation based on the questionnaire data, 2025.

Descriptive statistics were used to provide an overview of the general characteristics of the dataset, including measures of central tendency such as the mean, median, and mode, which are essential for basic statistical analysis (Harbison & Simmons, 2024). Furthermore, descriptive statistics served as a foundation for the subsequent multivariate analyses (Dong, 2023).

To examine differences between countries from multiple perspectives, the Mann–Whitney U test was applied. This non-parametric statistical procedure is used to compare two independent samples and is particularly appropriate when the dependent variable is measured on an ordinal scale or is continuous but not normally distributed. As the method does not require the strict distributional assumptions of parametric tests, it is a robust and appropriate choice when these assumptions are violated (McKnight & Najab, 2010; Park, 2025).

To compare the theoretical priority framework of performance measurement with the priority framework applied in practice using the same indicators, the Wilcoxon signed-rank test was employed. This procedure is suitable for examining differences between paired observations and is considered the non-parametric equivalent of the paired-samples t-test. Its application is particularly justified when the dependent variable

is measured on an ordinal scale or is continuous but not normally distributed (Fadilatunnisya et al., 2024; Horst, 2014).

To investigate statistically significant relationships among the background variables, the chi-square test was applied. This method is suitable for determining whether a statistically significant association exists between two categorical variables (Koehler, 2005; Neuhäuser & Ruxton, 2025).

To explore the dimensions of performance measurement, Principal Component Analysis (PCA) was applied primarily for variable reduction and the construction of component-based indices. The method enabled the transformation of a large number of correlated variables into a smaller number of mutually orthogonal components while preserving as much of the original information content as possible (Billard & Diday, 2006; Ye, 2025). In order to obtain conceptually coherent and readily interpretable components, the previously identified thematic areas were analysed separately. This approach reduced distortions arising from the joint analysis of thematically heterogeneous variables and provided a foundation for the subsequent Two-Step Cluster Analysis.

The suitability of PCA was assessed using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett’s test of sphericity. The KMO measure indicated adequate sampling adequacy, while the statistically significant result of Bartlett’s test confirmed that the correlation structure among the variables was suitable for dimension reduction. Components were retained based on the eigenvalue-greater-than-one criterion and the proportion of explained variance. The rotated component matrix demonstrated that the resulting components were readily interpretable and provided a suitable basis for further cluster analysis.

Based on the derived principal components, a Two-Step Cluster Analysis was conducted to identify distinct performance measurement profiles. This exploratory multivariate statistical technique is suitable for classifying observational units into homogeneous groups, even in large datasets, by maximising similarity within clusters and differences between clusters. The method operates in two consecutive stages: first, preliminary sub-clusters are formed using a sequential clustering procedure, and second, these sub-clusters are hierarchically merged to establish the final cluster structure. An important advantage of the method is its ability to simultaneously handle both continuous and categorical variables, making it particularly useful for analysing complex socio-economic datasets.

The determination of the optimal number of clusters was based on information criteria such as the Bayesian Information Criterion (BIC) and clustering quality indicators, particularly the silhouette measure. The application of the method can be considered statistically justified when the selected variables contribute meaningfully to cluster formation, the resulting clusters are substantively interpretable and sufficiently distinct from one another, and the identified patterns are substantively relevant rather than merely technical artefacts (Katona et al., 2015; Schiopu, 2010). In economics, silhouette values between 0.2 and 0.5 are generally regarded as indicating moderate but acceptable clustering quality. In the present study, this criterion was satisfied.

To examine statistically significant differences among the identified clusters and to validate the cluster solution, the Kruskal–Wallis test was applied. This non-parametric statistical procedure is used to compare more than two independent groups and is considered the rank-based alternative to one-way analysis of variance (ANOVA). The method is based on the ranking of observations and tests whether statistically significant differences exist between group distributions. However, although a significant result indicates the presence of differences, it does not identify which specific groups differ from one another (Junaidi, 2015; McKnight & Najab, 2010).

Accordingly, the analysis was supplemented in all cases with Dunn’s post hoc test as a pairwise comparison procedure following the Kruskal–Wallis test. Dunn’s test identified cluster pairs for which statistically significant differences existed, while controlling for Type I error through the application of the Bonferroni correction (Dinno, 2015).

2.2. Materials and methodology of the secondary research

The financial database was initially subjected to descriptive statistical analysis to understand its structure, general trends, measures of dispersion, and distributional characteristics, thereby establishing a foundation for subsequent multivariate analyses (Dong, 2023; Harbison & Simmons, 2024).

Prior to the present research, and as a basis for its development, a comparative assessment of hotel enterprises with annual revenues exceeding USD 1 million in Hungary and Romania was conducted using the EMIS database for the period 2018–2020. The financial performance of 1,029 accommodation service enterprises was analysed, including 793 Romanian and 236 Hungarian companies. This earlier investigation yielded several important findings.

The financial indicators revealed a highly heterogeneous sample, indicating that simple arithmetic averages are insufficient to provide a realistic representation of sectoral performance. Consequently, the application of cluster analysis, a technique frequently and effectively employed in the literature, was considered necessary (But et al., 2024; Čabinová et al., 2021; Lőrincz, 2025a; Lukáč, 2024; Opreana et al., 2024a; Pan et al., 2024a; Vašaničová et al., 2025a).

Using three key profitability indicators—Return on Assets (ROA), Return on Equity (ROE), and Return on Sales (ROS)—and applying the k-medoids clustering algorithm, the analysis identified distinct financial performance patterns. The results revealed seven clearly distinguishable clusters in both countries, which could be grouped into three broader performance categories. Romanian enterprises exhibited greater heterogeneity and more pronounced differences between clusters, whereas the Hungarian sample displayed a more balanced structure but a lower average level of performance.

Analysis of asset and capital structure characteristics suggested that enterprises with smaller asset bases but more stable capital structures demonstrated greater resilience during periods of economic turbulence. Furthermore, the findings indicated that the accommodation sector in the two countries responded

differently to economic shocks, reflecting bigger structural differences. In particular, despite its more developed tourism infrastructure, the Hungarian accommodation sector appeared more vulnerable due to its stronger dependence on international demand (Lőrincz, 2025a, 2025b).

Based on both the literature and these empirical findings, cluster analysis was also adopted in the present research. Clustering procedures can generally be divided into two broad categories: hierarchical and non-hierarchical methods. Hierarchical cluster analysis progressively merges or separates observational units, producing a tree-like cluster structure that can be visualised through a dendrogram. In contrast, non-hierarchical methods generate the final grouping directly based on a predefined or algorithmically estimated number of clusters.

The k-means and k-medoids algorithms belong to the family of non-hierarchical clustering techniques, as both procedures iteratively assign observations to a fixed number of clusters until an optimal partitioning solution is achieved (Kaçorri et al., 2023).

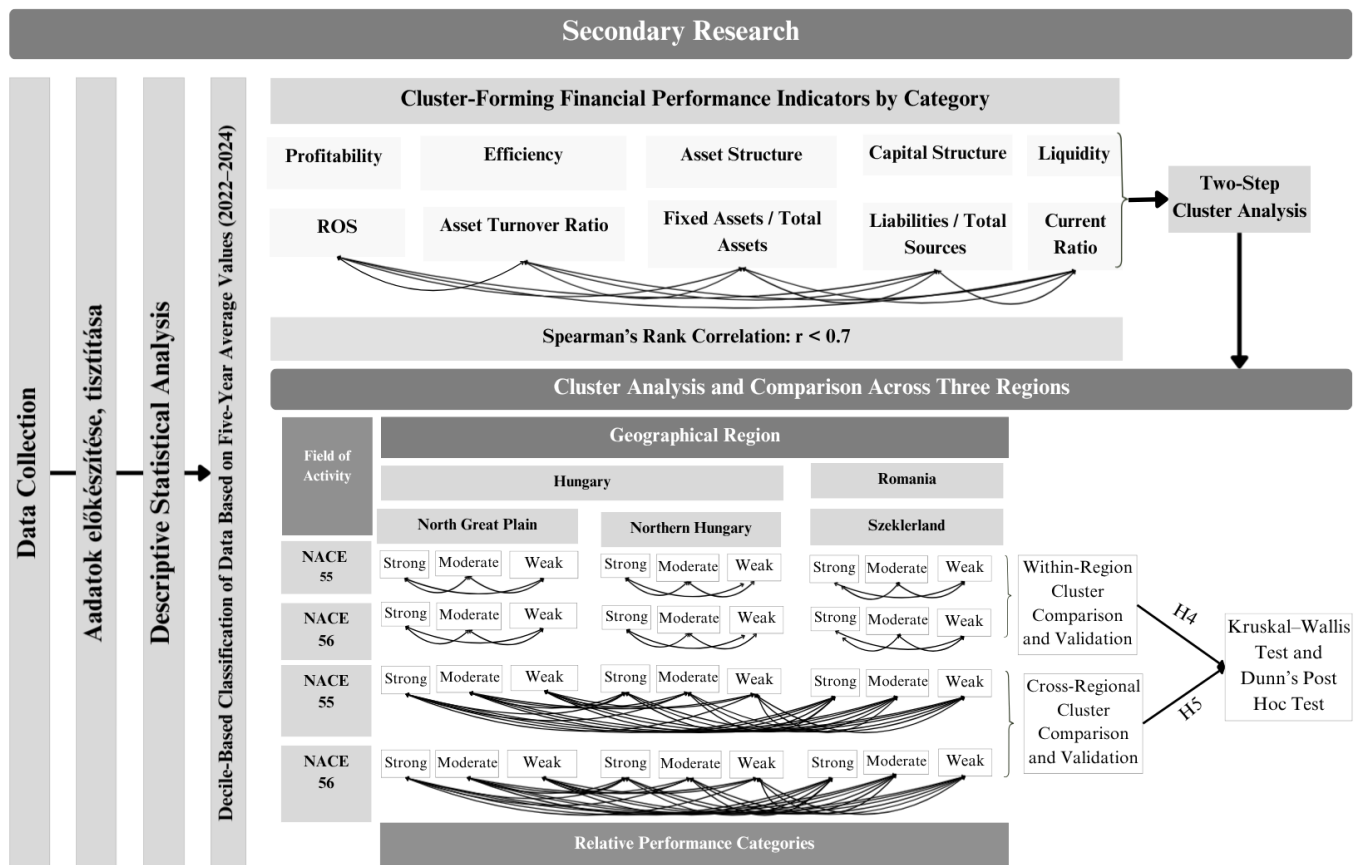


Figure 2. Processing of Secondary Data

Source: Author's own compilation, 2025.

The Two-Step Cluster Analysis can be regarded as an intermediate clustering method, combining a sequential pre-clustering step with a hierarchical clustering stage to produce the final cluster solution. Consequently, it is often classified as a hybrid clustering technique (Katona et al., 2015; Schiopu, 2010).

Determining the optimal number of clusters represents a critical step, as it can substantially influence the results obtained (Herman et al., 2022). The selection process may be based on prior assumptions, theoretical considerations, or empirical evaluation procedures. In hierarchical cluster analysis (using Ward's method and squared Euclidean distance), commonly applied approaches include the examination of dendrograms, cluster validity indices (Szüle, 2019), and the elbow method (Deb & Lee, 2018). For Two-Step Cluster Analysis, the optimal number of clusters is typically determined using the Bayesian Information Criterion (BIC) and clustering quality measures, particularly the silhouette coefficient. Within economic research, silhouette values between 0.2 and 0.5 are generally considered indicative of moderate but acceptable clustering quality (Katona et al., 2015; Schiopu, 2010). In the present study, the obtained results fell within this range. Nevertheless, it is important to emphasise that, beyond statistical separation, the resulting clusters must also possess substantive interpretability and practical relevance.

Furthermore, clustering techniques are sensitive to outliers; therefore, their identification and treatment are essential to ensure unbiased analysis. The literature offers several approaches for handling extreme values, including exclusion based on interquartile range (IQR) identification (Smiti, 2020), winsorisation (Brownen-Trinh, 2019), and various transformation and standardisation procedures. However, in the present database, neither logarithmic transformation nor IQR-based exclusion proved appropriate, as the examined financial indicators exhibited highly asymmetric distributions and contained both negative and extreme values. The application of these procedures would therefore have resulted in information loss and a distortion of the underlying economic content.

Consequently, a decile-based classification approach was adopted during data preparation. This method captures the relative position of enterprises within the sample, mitigates the distorting effect of extreme observations, and provides a more robust basis for subsequent statistical modelling. The use of decile rankings and rank transformations in the analysis of financial ratios is also supported by the literature, particularly in cases where variables exhibit non-normal distributions, heterogeneous scales, and the presence of outliers (Kwak & Kim, 2017; Lev & Sunder, 1979; McLeay & Omar, 2000; Nyitrai & Virág, 2019; Skomp et al., 1986).

In selecting the variables for the cluster analysis, particular attention was paid to ensuring that the final indicators captured distinct dimensions of performance rather than redundant information. To assess this, the strength of association between variables was examined using Spearman's rank correlation coefficient, a non-parametric measure of the direction and strength of monotonic relationships between two variables (Hauke & Kossowski, 2011; Sedgwick, 2014).

The application of Spearman's rank correlation is particularly appropriate when variables do not satisfy the assumptions required for parametric correlation analysis or when the relationship between variables is monotonic rather than linear. Instead of relying on raw values, the coefficient is calculated from ranked observations and ranges from -1 to $+1$, where extreme values indicate perfect negative and positive monotonic relationships, respectively, and a value of 0 indicates the absence of association.

During variable selection, the guiding principle was to maintain the absolute value of pairwise correlations below 0.7 wherever possible. This approach reduced the risk of redundancy and ensured that the selected indicators represented genuinely distinct dimensions of financial performance. An additional advantage of Spearman's rank correlation is its lower sensitivity to extreme values, making it a suitable tool for the preliminary screening of variables.

To examine, validate, and compare statistically significant differences among the identified clusters, the Kruskal–Wallis test described previously in the methodological section of the primary research was applied, complemented by Dunn's post hoc test. This approach enabled the determination of whether statistically significant differences existed among the distributions of the identified clusters (Junaidi, 2015; McKnight & Najab, 2010).

3. MAIN FINDINGS OF THE DISSERTATION

The primary objective of this doctoral research was to conduct a comparative analysis of enterprises operating in the accommodation and food service sector in Romania and Hungary, with particular emphasis on identifying corporate clusters based on financial performance and performance measurement maturity. The research was built upon two complementary pillars. On the one hand, a questionnaire survey was conducted to explore managerial attitudes, performance measurement practices, and related perceptions. On the other hand, a comparative analysis of the objective financial performance of enterprises was conducted using secondary data. While the primary research covered both countries at the national level, the secondary financial performance analysis focused on the North Great Plain and Northern Hungary regions in Hungary and the Szeklerland region in Romania.

The findings indicate that business performance in the accommodation and food service sector cannot be interpreted solely in terms of financial outcomes. In addition to financial considerations, operational, market-related, organisational, and partially subjective dimensions also play a significant role in shaping business performance. Consequently, the comprehensive evaluation of enterprises operating within the sector requires the combined application of both objective and subjective approaches.

The results of the primary research clearly demonstrate that managerial thinking related to performance measurement is not homogeneous, either across countries or across organisational characteristics. Overall, Hypothesis H1 was supported.

Sub-hypothesis H1a was confirmed, as statistically significant differences were identified between Hungarian and Romanian enterprises regarding the conceptual interpretation of business performance. This finding suggests that the definition of business performance is not merely a theoretical construct but is also shaped by the national business environment and the prevailing organisational decision-making culture.

Sub-hypothesis H1b was supported, as only a limited number of statistically significant cross-country differences were observed in the prioritisation of indicators within the theoretical approach to business performance measurement. This result suggests greater convergence in theoretical performance measurement frameworks, indicating that the international academic literature and widely adopted performance management frameworks exert a substantial influence at this level.

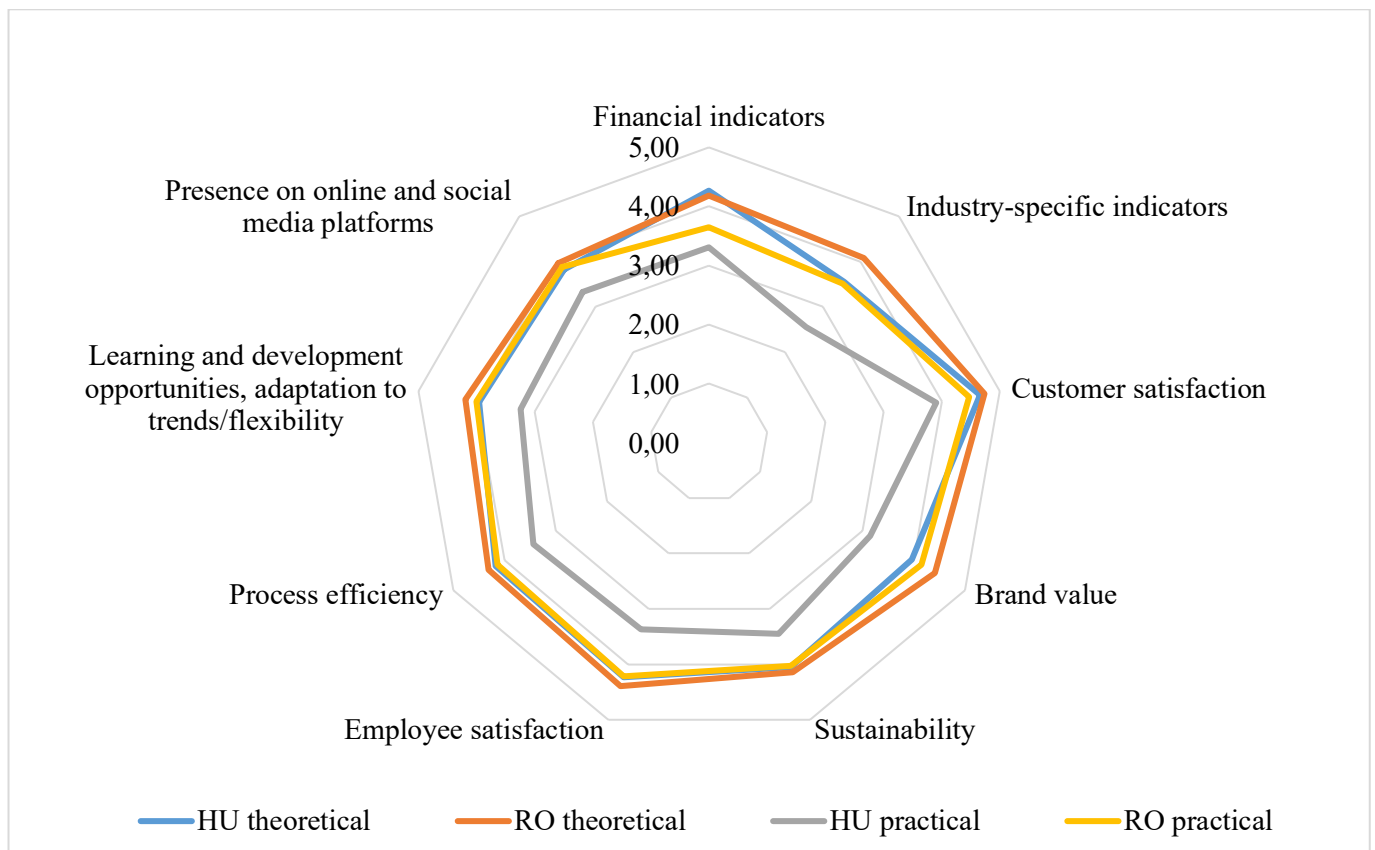


Figure 3: Theoretical and Practical Priority Weights of Business Performance Measurement Factors by Country

Source: Author's own compilation based on the questionnaire survey data, 2025.

In contrast, Sub-hypotheses H1c and H1d revealed more pronounced differences on the practical side of performance measurement. On the one hand, statistically significant discrepancies were identified in both countries between the indicators considered theoretically important and those actually prioritised in practice. On the other hand, Romanian enterprises assigned significantly higher practical priority to all examined performance measurement factors than their Hungarian counterparts. These findings suggest cross-country differences in the intensity and maturity of performance measurement practices. Figure 3 illustrates the differences observed between theoretical and practical priorities at the national level.

The results of Sub-hypothesis H1e further refined this picture. Company size, field of activity, and company age played a statistically significant role in shaping the practical prioritisation of business performance measurement indicators, whereas ownership structure and the mode of accounting service provision did not exert a significant influence. This suggests that the maturity of performance measurement practices is more closely associated with organisational complexity and the stage of corporate development than with formal ownership or administrative characteristics.

Based on the analyses concerning the effects of economic crises, Hypothesis H2 was partially supported. The findings indicate that the COVID-19 pandemic, the energy crisis, and the war-related conflict transformed both the business performance and the performance measurement practices of enterprises

operating in the accommodation and food service sector. However, the magnitude and nature of these effects varied by crisis type and country.

Sub-hypothesis H2a was only partially confirmed, as statistically significant differences between Hungarian and Romanian enterprises in the perceived impact on business performance were identified only for the energy crisis.

Table 1: Comparison of the Effects of Crises on Hungarian and Romanian Enterprises

Factor	Phenomenon	Mann-Whitney U	Wilcoxon W	Z	p
Business performance of the enterprise	COVID-19	41169	86319	-1,943	0,052
	Energy crisis	33775	78925	-5,572	**
	War-related conflict	43297	88447	-0,855	0,393
Business performance measurement	COVID-19	38696	83846	-3,082	*
	Energy crisis	43256,5	88406,5	-0,845	0,398
	War-related conflict	39846	84996	-2,576	**
Perceived importance of business performance measurement	COVID-19	38923,5	84073,5	-2,958	*
	Energy crisis	44017,5	89167,5	-0,476	0,634
	War-related conflict	39067	84217	-2,972	*
Significance levels associated with the test statistics: $p < 0.05$; $p < 0.01$; $p < 0.001$.					

Source: Author's own compilation based on the questionnaire survey data, 2025.

Sub-hypothesis H2b was also partially supported. Country-specific differences were observed in the effects of the COVID-19 pandemic and the war-related conflict on performance measurement practices and on the perceived importance of performance measurement, whereas such differences were less evident in the case of the energy crisis. The statistical results of the hypothesis tests are presented in Table 1.

In contrast, Sub-hypothesis H2c was confirmed. During periods of crisis, the profits generated by enterprises were primarily sufficient only to maintain ongoing operations, while the subsequent periods under examination showed signs of moderate improvement and gradual stabilisation. This finding is particularly important, as it indicates that during times of crisis, the focus of performance interpretation shifted from growth and development towards survival, liquidity management, and the maintenance of operational continuity.

A further important finding of the primary research is that enterprises can be classified into multidimensional and clearly distinguishable maturity profiles based on their business performance measurement practices. The results of the Principal Component Analysis (PCA) confirmed Sub-hypothesis H3a, as performance measurement practices could be structured into several theoretically meaningful and interpretable components. Separate treatment of the thematic dimensions enabled the identification of the internal structure of the different functional areas of business performance measurement.

Sub-hypothesis H3b was also supported. The Two-Step Cluster Analysis identified clearly distinguishable performance measurement maturity clusters, demonstrating that enterprises in the accommodation and food service sector differ substantially in the sophistication, scope, and practical application of their performance measurement systems.

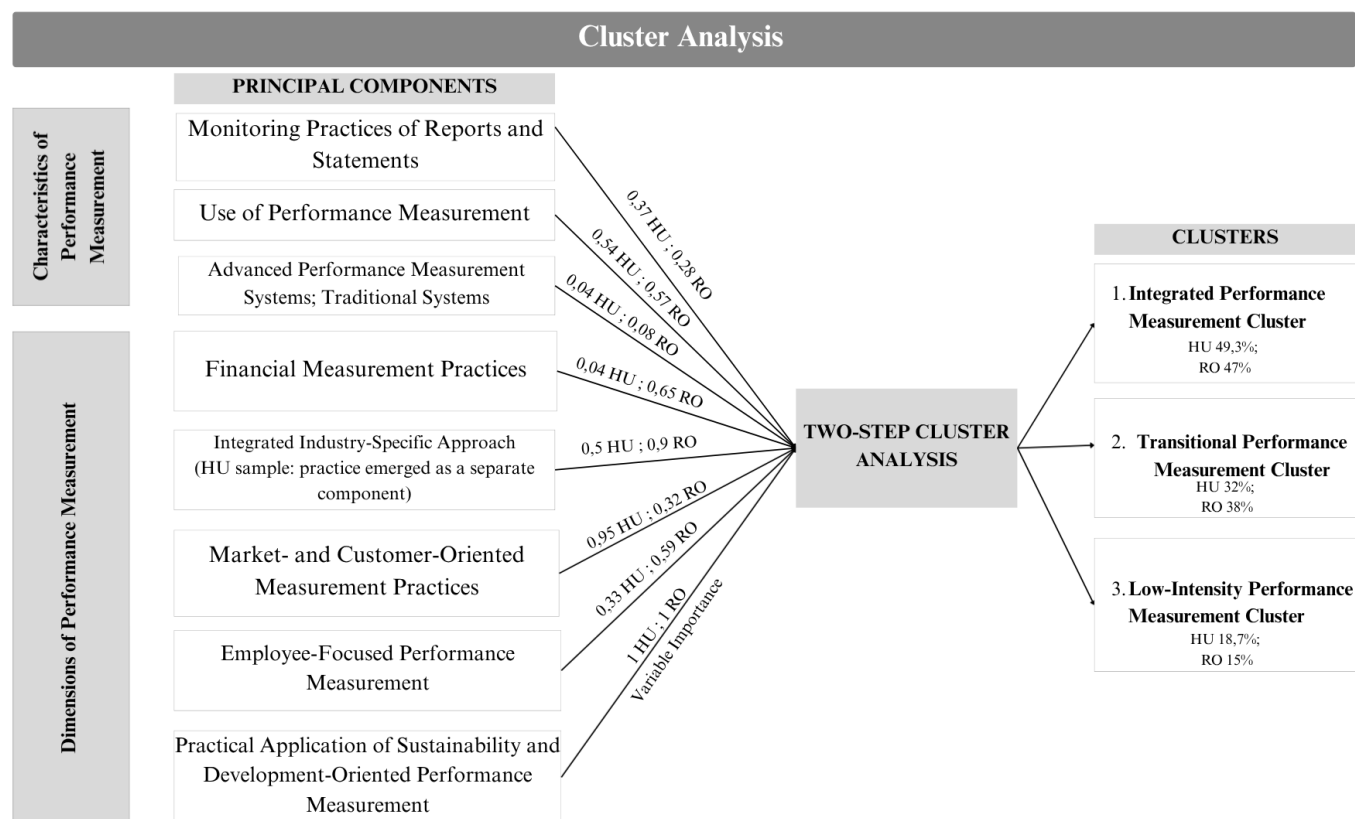


Figure 4: Overview Model of the Two-Step Cluster Analysis Based on Principal Components

Source: Author's own compilation based on the questionnaire survey data, 2025.

Based on the results, three distinct maturity profiles emerged: the strategy-oriented, integrated performance measurement enterprise; the functional, transitional performance measurement enterprise; and the low-intensity, ad hoc performance measurement enterprise. The results related to Sub-hypothesis H3c indicated that the Hungarian and Romanian cluster structures were comparable at the principal component level. Consequently, Hypothesis H3 was fully supported. The flowchart of the Two-Step Cluster Analysis conducted to test this hypothesis is presented in Figure 4.

The secondary research clearly demonstrated that enterprises operating in the examined regions do not constitute a homogeneous group in terms of financial performance. Accordingly, Hypothesis H4 was confirmed. The cluster analysis identified clearly distinguishable groups of enterprises with different financial performance profiles within each region, thereby supporting Sub-hypothesis H4a.

Within the NACE 55 sector, the financially strongest and most stable clusters were represented by Cluster 3 in the North Great Plain region, Cluster 3 in Northern Hungary, and Cluster 1 in Szeklerland. The medium-performing and relatively balanced cluster corresponded to Cluster 2 in the North Great Plain,

Cluster 1 in Northern Hungary, and Cluster 2 in Szeklerland. In contrast, the financially more vulnerable and weaker-performing cluster comprised Cluster 1 in the North Great Plain, Cluster 2 in Northern Hungary, and Cluster 3 in Szeklerland.

Based on the combined evaluation of decile-based median values and raw median financial indicators, the strongest cluster within the NACE 55 sector was identified as Cluster 1 in Szeklerland, followed by Cluster 3 in Northern Hungary and Cluster 2 in the North Great Plain. At the lower end of the ranking were Cluster 2 in Northern Hungary and Cluster 1 in the North Great Plain. Among the best-performing accommodation-service clusters, profitability indicators and, to a lesser extent, equity strength proved to be the most important differentiating factors.

Within the NACE 56 sector, three clearly distinguishable performance profiles also emerged. The financially stronger and more stable cluster was represented by Cluster 2 in the North Great Plain, Cluster 3 in Northern Hungary, and Cluster 2 in Szeklerland. The intermediate cluster, characterised by mixed performance, corresponded to Cluster 3 in the North Great Plain, Cluster 2 in Northern Hungary, and Cluster 3 in Szeklerland. The weaker, financially more vulnerable cluster was represented by Cluster 1 across all three regions. In terms of the comparative performance ranking, Cluster 2 in Szeklerland achieved the strongest performance within the NACE 56 sector, followed by Cluster 2 in the North Great Plain and Cluster 3 in Northern Hungary, whereas Cluster 1 in Northern Hungary represented the weakest-performing cluster. In contrast to the NACE 55 sector, cluster differentiation within NACE 56 was driven more strongly by liquidity and financing indicators. The detailed results of the analysis for the NACE 56 sector are presented in Table 2.

The longitudinal analysis confirmed that the differences observed between the clusters were not merely static but also reflected dynamic patterns over time. Consequently, Sub-hypothesis H4b was supported. Financially stable clusters consistently exhibited favourable profitability, financing, and liquidity structures, whereas weaker-performing clusters were characterised by persistently negative profitability, high levels of indebtedness, and low liquidity. These characteristics remained evident throughout the analysed period. At the same time, distinct structural patterns were identified across the examined regions. In Szeklerland, differences between clusters were more pronounced, suggesting a more heterogeneous corporate structure. Northern Hungary displayed a more gradual distribution of cluster characteristics, whereas the North Great Plain represented an intermediate pattern between these two structural configurations.

**Table 2: Cluster-Level Median Values of Financial Indicators in the Three Examined Regions:
NACE 56**

Region	North Great Plain			Northern Hungary			Szeklerland		
Cluster Number	1	2	3	1	2	3	1	2	3
Number of Enterprises	291	544	226	212	404	339	346	586	323
Share of Enterprises (%)	27,40	51,30	21,30	22,20	42,30	35,50	27,57	46,69	25,74
Variable	Median Values of the Average Financial Indicators of Enterprises, 2020–2024 (NACE 56)								
ROA (%)	-32,80	12,20	0,50	-56,70	3,90	13,20	-19,50	30,20	3,60
ROE (%)	30,20	18,40	9,10	18,70	14,40	16,90	47,30	50,00	32,30
ROS (%)	-8,70	7,00	-1,00	-18,70	2,50	9,70	-3,80	15,50	1,40
Asset Turnover Ratio	4,789	1,836	1,157	4,483	1,925	1,526	5,372	2,04	1,141
Proportion of Fixed Assets (%)	13,50	16,60	64,60	12,00	39,50	7,90	2,80	10,40	63,70
Liabilities Ratio (%)	140,50	26,40	69,30	198,40	57,10	15,00	167,90	28,70	70,70
Equity Ratio (%)	-40,50	71,60	26,80	-99,00	38,90	83,10	-67,90	70,10	15,50
Current Ratio	1,202	5,891	0,766	0,677	2,236	10,59	0,851	5,564	1,16
Quick Ratio	0,844	5,112	0,49	0,434	1,837	9,802	0,395	4,159	0,705
Accounts Receivable Turnover Ratio	21,775	14,793	12,971	33,544	25,801	26,087	64,953	28,517	20,071

Source: Author's own compilation based on the financial database, 2026.

Overall, Hypothesis H5 was confirmed. The findings indicate that clusters representing similar relative performance levels were only partially comparable across regions. These correspondences were not based on complete financial equivalence; rather, similar performance levels were achieved through different combinations of financial indicators.

Accordingly, Sub-hypothesis H5a was also supported. Although similarities between regions were identified, these did not emerge through identical financial structures within the two examined sectors. In the NACE 55 sector, regional comparability proved to be weaker and more complex. Similarities among weaker-performing clusters were primarily associated with vulnerabilities in capital structure and liquidity. Medium-performing clusters exhibited similarities mainly in profitability indicators and accounts receivable turnover, whereas the strongest-performing clusters were linked primarily through profitability measures and, to a lesser extent, equity strength. Consequently, regional correspondences among clusters in this sector were only partial and were more strongly associated with income-generating capacity and selected financing and liquidity dimensions.

In contrast, greater structural similarity was observed within the NACE 56 sector, indicating stronger regional comparability of clusters. For the weaker-performing clusters, similarities were jointly determined

by capital structure, liquidity, efficiency, and financing characteristics. In the medium-performing clusters, profitability and capital structure indicators played a more prominent role. Among the strongest-performing clusters, similarities were primarily explained by the proportion of fixed assets and asset turnover. The results of these comparisons are presented in Table 3.

Table 3: Results of Dunn's Test: Cluster Comparison Between the North Great Plain and Szeklerland Regions (NACE 56)

Cluster Pair		ROS		Asset Turnover Ratio		Fixed Assets / Total Assets		Liabilities / Total Assets		Current Ratio	
North Great Plain	Szeklerland	Z-value	Adj. Sig.	Z-value	Adj. Sig.	Z-value	Adj. Sig.	Z-value	Adj. Sig.	Z-value	Adj. Sig.
Cluster Number											
1	1	-1,989	1	-1,057	1	-4,38	1	-1,486	1	3,179	0,053
1	2	-21,099	***	13,254	***	0,243	1	22,346	***	-17,766	***
1	3	-6,969	***	19,047	***	-17,498	***	8,012	***	0,545	1
2	1	12,862	***	-16,698	***	-7,306	***	-26,898	***	22,691	***
2	2	-7,902	***	-1,908	1	2,88	1	-2,166	1	0,561	1
2	3	6,825	***	6,767	***	-17,941	***	-15,43	***	19,24	***
3	1	1,439	1	-19,509	***	-21,466	***	-9,318	***	-1,374	1
3	2	-15,731	***	-8,096	***	19,22	***	11,797	***	-21,001	***
3	3	-3,251	*	-0,519	1	0,846	1	-0,36	1	-3,763	**

Significance levels associated with the test statistics: * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$.

Source: Author's own compilation based on the financial database, 2026.

In other words, enterprises operating in the NACE 56 sector exhibited a more consistent financial logic in the regional comparison. This finding was likely influenced by the fact that the priority ranking and relative importance of the five clustering variables applied during cluster formation were considerably more similar within the NACE 56 sector than in the NACE 55 sector.

Sub-hypothesis H5b was confirmed, as the cluster closest to the benchmark generally coincided with the best-performing cluster in the NACE 56 sector. In contrast, within the NACE 55 sector, benchmark proximity was not consistently associated with the strongest-performing cluster across all regions; rather, it was more often associated with clusters exhibiting moderate relative performance.

This finding suggests that benchmark proximity and relative cluster position are not entirely equivalent concepts. Nevertheless, the relationship between the two was considerably stronger in the NACE 56 sector than in the NACE 55 sector. This may be explained by the fact that enterprises operating in the NACE 56 sector displayed greater similarity in both their financial structures and clustering characteristics. Furthermore, this sector did not experience the same magnitude of crisis-induced decline that characterised the NACE 55 sector.

Table 4: Overview of the Research Hypotheses, Applied Analytical Methods, and Main Findings

<i>Hypotheses</i>	<i>Methods and Instruments</i>	Main Findings	Hypothesis Testing Results
H1: The definition of business performance, as well as the prioritisation of indicators applied in performance measurement, is significantly influenced by the national context and organisational characteristics of enterprises, while differences can also be identified between the theoretical importance and the practical application of these indicators.	Statistical analysis of questionnaire survey data; Chi-square test (χ^2); Mann–Whitney U test; Wilcoxon signed-rank test; radar chart analysis	The conceptual interpretation of business performance differs between countries. Theoretical performance measurement priorities show largely similar patterns in both countries; however, significant differences emerge in practical application. Differences were identified between theoretical importance and practical use, while company size, field of activity, and company age were found to influence practical priorities.	H1: <i>Accepted;</i> <i>H1a:</i> <i>Accepted;</i> <i>H1b:</i> <i>Accepted;</i> <i>H1c:</i> <i>Accepted;</i> <i>H1d:</i> <i>Accepted;</i> <i>H1e:</i> <i>Accepted</i>
H2: As a result of economic crises, the business performance and performance measurement practices of enterprises operating in the accommodation and food service sector have undergone substantial transformation, while the role of financial results became primarily limited to maintaining operational viability, followed by gradual stabilisation in the post-crisis period in both countries.	Statistical analysis of questionnaire survey data; Mann–Whitney U test; descriptive comparative analysis	Economic crises affected business performance and performance measurement practices with varying intensity. Cross-country differences were not equally pronounced across all crisis types; however, the increasing importance of maintaining operational continuity and the subsequent moderate stabilisation were observable in both countries.	H2: <i>Partially Accepted;</i> <i>H2a:</i> <i>Partially Accepted;</i> <i>H2b:</i> <i>Partially Accepted;</i> <i>H2c:</i> <i>Accepted</i>
H3: Based on business performance measurement practices, enterprises operating in the accommodation and food service sector can be classified into multidimensional and clearly distinguishable performance measurement maturity profiles.	Statistical analysis of questionnaire survey data; Principal Component Analysis (PCA); Two-Step Cluster Analysis; Chi-square test (χ^2); Mann–Whitney U test; Kruskal–Wallis test; Dunn’s post hoc test	Performance measurement practices exhibit a multidimensional structure. Clearly distinguishable performance measurement maturity clusters were identified among enterprises, and these clusters proved comparable across countries.	H3: <i>Accepted;</i> <i>H3a:</i> <i>Accepted;</i> <i>H3b:</i> <i>Accepted;</i> <i>H3c:</i> <i>Accepted</i>
H4: Enterprises operating in the accommodation and food service sector in the examined regions can be classified into clearly distinguishable cluster groups based on their financial performance.	Regional financial statements; financial performance analysis; Two-Step Cluster Analysis; Kruskal–Wallis test; Dunn’s post hoc test; longitudinal financial analysis	Enterprises in the examined regions can be classified into clearly distinguishable clusters based on financial performance. Several significantly different financial performance profiles were identified within each region, and these differences	H4: <i>Accepted;</i> <i>H4a:</i> <i>Accepted;</i> <i>H4b:</i> <i>Accepted</i>

		persisted over time, indicating stable dynamic patterns.	
H5: The correspondence between clusters identified in the examined regions is only partial, since clusters representing the same relative performance level may be characterised by different financial structures.	Regional financial statements; financial analysis; Kruskal–Wallis test; Dunn’s post hoc test; comparative cluster interpretation; benchmark analysis	Clusters with similar relative performance levels are characterised by different financial structures across regions; therefore, cluster comparability is only partial. The cluster closest to the benchmark is not necessarily identical to the cluster identified as the strongest performer within a given region.	H5: <i>Accepted;</i> H5a: <i>Accepted;</i> H5b: <i>Accepted</i>

Source: Author’s own compilation, 2026

4. NEW AND NOVEL SCIENTIFIC FINDINGS OF THE THESIS

1. The research empirically demonstrated that significant differences exist between enterprises operating in the accommodation and food service sector in Romania and Hungary regarding both the interpretation of business performance and the practical application of performance measurement. At the same time, a greater degree of convergence was observed in theoretical performance measurement approaches. The findings also revealed that performance measurement practices are primarily influenced by company size, field of activity, and company age.
2. The analysis of crisis effects revealed that the COVID-19 pandemic, the energy crisis, and the war-related conflict did not uniformly influence business performance and performance measurement practices. Instead, distinct patterns emerged depending on both the type of crisis and the country examined. Significant cross-country differences in perceived impacts on business performance were identified primarily in relation to the energy crisis, whereas the effects of the COVID-19 pandemic and the war-related conflict generated more pronounced differences in performance measurement practices and in the perceived importance of performance measurement. The findings further demonstrated that, during periods of crisis, the focus of performance evaluation shifted from growth-oriented objectives towards the maintenance of liquidity, operational continuity, and organisational survival.
3. Based on the primary research results, the examined enterprises can be classified into multidimensional, clearly distinguishable performance measurement maturity profiles. The applied statistical procedures identified three professionally interpretable organisational types: strategy-oriented integrated performance measurement enterprises, functional transitional performance measurement enterprises, and low-intensity ad hoc performance measurement enterprises.
4. The secondary analysis confirmed that enterprises operating in the accommodation and food service sector within the examined regions do not constitute a homogeneous group in terms of financial performance. Instead, clearly distinguishable performance clusters can be identified within each region. The findings further demonstrated that the differences between clusters are not only static but also dynamic, reflecting persistent patterns of financial performance over time.
5. The comparative analysis revealed that clusters representing similar relative performance levels are only partially comparable across regions. These correspondences are not based on complete financial equivalence but rather on different combinations of financial indicators. The findings also showed that enterprises in the food and beverage service sector exhibit greater structural similarity than those in the accommodation sector.

5. THEORETICAL AND PRACTICAL IMPLICATIONS OF THE RESEARCH FINDINGS

The findings suggest that, at the corporate level, performance measurement should be integrated into managerial decision-making processes more consciously and systematically. In particular, performance measurement should not be regarded solely as a retrospective or occasional financial evaluation tool, but also as a regular instrument of managerial control. The maturity of performance measurement is not merely a matter of data availability; it is also closely related to managerial mindset, organisational learning, and the more informed preparation of managerial decisions. Accordingly, the combined application of financial, operational, and industry-specific indicators is recommended, together with the development of an evaluation framework aligned with organisational objectives.

Clusters representing different levels of performance and performance measurement maturity require different development priorities. For enterprises characterised by lower levels of performance measurement maturity, the primary objective should be the establishment of systematic indicator monitoring and basic evaluation practices. Particular emphasis should be placed on strengthening financial stability, liquidity, and solvency. For clusters exhibiting moderate performance levels, improving operational efficiency, increasing the regularity of performance measurement, and progressing towards integrated performance management systems are recommended. In contrast, more advanced enterprises should focus on exploiting growth and strategic development opportunities, adopting integrated strategic-level performance management systems, and systematically incorporating non-financial dimensions into performance evaluation. Based on the experience of recent crises, the application of performance measurement practices capable of monitoring not only profitability but also liquidity, financial stability, and organisational adaptability appears particularly important.

At the policy level, a differentiated approach is required. Enterprises operating in the accommodation and food service sector should not be treated as a uniform target group for development policies and programmes. Consequently, support schemes and development initiatives should take into account differences in financial position, maturity of performance measurement, and regional embeddedness. Policy interventions should therefore be tailored not only to sector-specific characteristics but also to regional conditions. For weaker-performing clusters, strengthening financial stability, liquidity, and managerial capabilities and awareness should represent the primary objective, whereas for more advanced clusters, support should focus on strategic management capabilities, innovation, and the development of more sophisticated control systems.

From a methodological perspective, the research confirmed the importance of applying robust statistical procedures to mitigate the distorting effects of extreme values. Due to the skewed distribution of financial indicators, the decile-based approach proved effective in capturing the relative positions of enterprises and in providing a more stable basis for cluster formation. The application of similar approaches may therefore

be recommended in future research, particularly when analysing corporate databases characterised by non-normal distributions and substantial heterogeneity. Furthermore, future studies could benefit from complementing quantitative analyses with qualitative methods, especially in order to gain a deeper understanding of the managerial and organisational mechanisms underlying the identified cluster structures. Overall, the findings suggest that the development of enterprises in the accommodation and food service sector should take into account financial performance, performance measurement maturity, and regional characteristics simultaneously. Consequently, the cluster-based approach may be regarded not only as an analytical tool but also as a practical framework supporting enterprise development and evidence-based policymaking.

6. PUBLICATIONS RELATED TO THE DISSERTATION TOPIC



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Subject: PhD Publication List

Candidate: Annamária Lőrincz
Doctoral School: Doctoral School of Management and Business
MTMT ID: 10085786

List of publications related to the dissertation

Articles, studies (5)

1. **Lőrincz, A.:** Comparative analysis of the financial performance of hotels in Romania and Hungary.
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Total IF of journals (all publications): 0,3

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The Candidate's publication data submitted to the Tudóstér have been validated by DEENK on the basis of the Journal Citation Report (Impact Factor) database.

02 June, 2026



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